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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/980,937

12/04/2001

Soryu Nakayama

10059-401US
(P25379-01)

1922

570

7590

09/12/2003

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ONE COMMERCE SQUARE
2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103-7013

EXAMINER

CHANEY, CAROL DIANE

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/980,937

Applicant(s)

NAKAYAMA ET AL.

Examiner

Carol Chaney

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 7-9 and 12-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1745

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 6, 10 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinyama et al., US Patent 6,548,210 B1.

Shinyama et al. disclose nickel electrodes for alkaline batteries. With regards to claims 1, 2 and 6, the electrodes are formed by impregnating a sintered, porous nickel substrate with an aqueous solution of nickel nitrate and cobalt nitrate, and then dipping the substrate into a sodium hydroxide solution. A solid solution of nickel and cobalt hydroxide is thus filled into the porous nickel substrate. The solid solution is the electrode active material. (See column 10, lines 33-54.) A coating layer is subsequently formed over the active material layer. Coating layers of the combination of nickel hydroxide and manganese hydroxide, or the combination of cobalt and manganese hydroxide are exemplified. With regards to claim 3, the example using cobalt and manganese will have cobalt hydroxide on the electrode active material outer surface. (See column 37, Table 21, examples F1 and F6, and column 39, lines 9-50.)

Art Unit: 1745

With regards to claim 5, the electrodes disclosed by Shinyama et al. are used in alkaline secondary batteries having a hydrogen storage alloy as a negative electrode, a polyolefin separator and an alkaline electrolyte. (column 11, lines 36-48.)

With regards to claim 10, the formation of a manganese hydroxide layer disclosed by Shinyama et al. is considered to "cause the positive electrode to retain a manganese compound", ie manganese hydroxide.

Claims 1-3, 5, 6, 10 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Tamagawa et al., US Patent 6,613,107 B1.

Tamagawa et al. disclose nickel hydroxide electrodes for alkaline batteries which include a coating layer of metal oxide over the surface of the active material. The electrodes are produced by

- a) forming a porous nickel sintered substrate,
- b) impregnating the substrate with active material, including nickel oxyhydroxide
- d) immersing the active material loaded substrate in an acid salt solution of elements including manganese,
- e) treating the electrode with alkali to form a metal hydroxide layer.

(See column 7, lines 8-28.)

The active material contains cobalt and cadmium in addition to nickel. Thus, with regards to claims 2 and 3, the Tamagawa et al. includes cobalt hydroxide on the surface of the active material, since the cobalt will be found throughout the active material.

Art Unit: 1745

With regards to claim 5, Tamagawa et al. disclose nickel cadmium alkaline batteries. (Column 4, lines 58-68.)

With regards to claims 10 and 11, the formation of a manganese hydroxide layer as disclosed by Tamagawa et al. is considered to "cause the positive electrode to retain a manganese compound", ie manganese hydroxide.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinyama et al.

As discussed above, Shinyama et al. disclose applicants invention essentially as claimed, with the exception that Shinyama et al. do not specifically disclose a coating layer thickness of between 0.1 microns and 20 microns. Shinyama et al. disclose a coating layer weight of 5 to 6 mg/cm². (Column 36, lines 25-27.) The theoretical density of manganese hydroxide is about 3.26 g/cm³. Therefore, a 100% dense layer of manganese hydroxide would be about 1.5 microns thick. One of ordinary skill in the art would understand actual layer thickness to be somewhat greater than this, but the Shinyama et al. disclosure to encompass the coating layer thicknesses claimed by the applicants.

Allowable Subject Matter

Claims 7-9, 12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to disclose forming a manganese coating layer on a nickel hydroxide active material for an alkaline battery by immersing the substrate in a *saturated* alkaline solution containing manganese ions (claims 7-9) and does not suggest incorporating manganese compounds or metal in either the separator or the negative electrode plate. (Claims 12-15.) The nearest prior art of Tamagawa et al. or Shinyama et al. teach providing a layer of manganese hydroxide on nickel/cobalt hydroxide active materials of the positive electrode by immersing the electrode in a manganese nitrate solution and then a sodium hydroxide solution, but do not suggest the solutions should be saturated. The prior art also does not suggest incorporating manganese in other than the positive electrode.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (703) 305-3777. The examiner can normally be reached on Mon - Fri 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 703-308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Carol Chaney
Primary Examiner
Art Unit 1745

cc